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<110> Cahoon, Edgar B.  
Kinney, Anthony J.  
Cahoon, Rebecca E.

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Ser Val Val Asn Asp Asp Ala Gln Gly Thr Ala Asn Leu Ala Gly Asp  
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Gly Arg Gly Asn Ala Asp Ala Thr Phe Thr Tyr Arg Pro Ser Val Pro  
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Met Val Ala Pro Thr Leu Cys Tyr Gln Pro Ser Tyr Pro Arg Ser Ala  
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Met Val Arg His Ile Tyr Phe Pro Cys Leu Arg Ser Lys Ile Pro Lys  
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Thr Leu Ala Ile Ile Ala Phe Leu Val Ser Ala Val Phe His Glu  
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Glu Arg Phe Gly Ser Thr Val Gly Asn Met Ile Phe Trp Phe Ile Phe  
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Phe Thr Thr Phe Glu Ile Val Tyr Pro Val Leu Val Ile Leu Lys Cys  
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Asp Ser Ala Val Leu Ser Gly Phe Val Leu Met Phe Ile Ala Cys Ile  
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Val Trp Leu Lys Leu Val Ser Phe Ala His Thr Asn His Asp Ile Gly  
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Pro Tyr Val Arg Lys Gly Trp Leu Val Arg Gln Val Ile Leu Tyr Leu  
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Ile Phe Thr Gly Leu Gln Gly Phe Ile Ile Glu Gln Tyr Ile Asn Pro  
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Val Glu Thr Val Leu Lys Leu Ser Leu Pro Asn Val Tyr Leu Trp Leu  
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Cys Met Phe Tyr Cys Leu Phe His Leu Trp Leu Asn Ile Leu Ala Glu  
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Lys Thr Ile Asp Glu Tyr Trp Arg Lys Trp Asn Met Pro Val His Lys  
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Trp Ile Val Arg His Ile Tyr Phe Pro Cys Met Arg Asn Gly Ile Ser  
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Lys Glu Val Ala Val Phe Ile Ser Phe Phe Val Ser Ala Val Leu His  
275 280 285

Glu Tyr Val Leu Leu Phe Leu His Ile Leu Lys Phe Trp Ala Phe Leu  
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Gly Ile Met Leu Gln Ile Pro Leu Ile Leu Thr Ser Tyr Leu Lys  
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Asn Lys Phe Ser Asp Thr Met Val Gly Asn Met Ile Phe Trp Phe Phe  
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20 25 30

Ile Val Val Asn Ser Gln His Pro Leu Met Gly Gly Leu Leu Asn Ala  
35 40 45

Val Glu Thr Val Leu Lys Leu Ser Leu Pro Asn Val Tyr Leu Trp Leu  
50 55 60

Cys Met Phe Tyr Cys Leu Phe His Leu Trp Leu Asn Ile Leu Ala Glu  
65 70 75 80

Ile Leu Arg Phe Gly Asp Arg Glu Phe Tyr Lys Asp Trp Trp Asn Ala  
85 90 95

Lys Thr Ile Asp Glu Tyr Trp Arg Lys Trp Asn Met Pro Val His Lys  
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Trp Ile Val Arg His Ile Tyr Phe Pro Cys Met Arg Asn Gly Ile Ser  
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35 40 45  
Ile Leu Phe Thr Thr Phe Glu Ile Val Tyr Pro Val Leu Val Ile Leu  
50 55 60  
Lys Cys Asp Ser Ala Val Leu Ser Gly Phe Val Leu Met Phe Ile Ala  
65 70 75 80  
Cys Ile Val Trp Leu Lys Leu Val Ser Phe Ala His Thr Asn His Asp  
85 90 95  
Ile Arg Lys Leu Ile Thr Ser Gly Lys Lys Val Asp Asn Glu Leu Thr  
100 105 110  
Ala Ala Gly Ile Asp Asn Leu Gln Ala Pro Thr Leu Gly Ser Leu Thr  
115 120 125  
Tyr Phe Met Met Ala Pro Thr Leu Cys Tyr Gln Pro Ser Tyr Pro Arg  
130 135 140  
Thr Pro Tyr Val Arg Lys Gly Trp Leu Val Arg Gln Val Ile Leu Tyr  
145 150 155 160  
Leu Ile Phe Thr Gly Leu Gln Gly Phe Ile Ile Glu Gln Tyr Ile Asn  
165 170 175  
Pro Ile Val Val Asn Ser Gln His Pro Leu Met Gly Gly Leu Leu Asn  
180 185 190  
Ala Val Glu Thr Val Leu Lys Leu Ser Leu Pro Asn Val Tyr Leu Trp  
195 200 205  
Leu Cys Met Phe Tyr Cys Leu Phe His Leu Trp Leu Asn Ile Leu Ala  
210 215 220  
Glu Ile Leu Arg Phe Gly Asp Arg Glu Phe Tyr Lys Asp Trp Trp Asn

225 230 235 240

Ala Lys Thr Ile Asp Glu Tyr Trp Arg Lys Trp Asn Met Pro Val His  
245 250 255

Lys Trp Ile Val Arg His Ile Tyr Phe Pro Cys Met Arg Asn Gly Ile  
260 265 270

Ser Lys Glu Val Ala Val Phe Ile Ser Phe Phe Val Ser Ala Val Leu  
275 280 285

His Glu Val Thr Tyr Leu Leu Phe His Ser Ser Ser Ala Tyr Ile Asn  
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Tyr Ile Val Leu Tyr Phe Gln Met Cys Pro Phe Glu Phe Arg His Ala  
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Asn Tyr Asp Ile Arg Val Leu Ser Lys Ser Thr Glu Lys Gly Ala Ala  
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Tyr Gly Asn Tyr Val Asp Pro Glu Asn Met Lys Asp Pro Thr Phe Lys  
35 40 45

Ser Leu Val Tyr Phe Met Leu Ala Pro Thr Leu Cys Tyr Gln Pro Thr  
50 55 60

Tyr Pro Gln Thr Thr Cys Ile Arg Lys Gly Trp Val Thr Gln Gln Leu  
65 70 75 80

Ile Lys Cys Val Val Phe Thr Gly Leu Met Gly Phe Ile Ile Glu Gln  
85 90 95

Tyr Ile Asn Pro Ile Val Lys Asn Ser Lys His Pro Leu Lys Gly Asn  
100 105 110

Phe Leu Asn Ala Ile Glu Arg Val Leu Lys Leu Ser Val Pro Thr Leu  
115 120 125

Tyr Val Trp Leu Cys Met Phe Tyr Cys Phe Phe His Leu Trp Leu Asn  
130 135 140

Ile Val Ala Xaa Leu Leu Cys Phe Gly Asp Arg Glu Phe Tyr Lys Asp

145 150 155 160

Trp Trp Asn Xaa Lys Thr Val Glu Glu Tyr Trp Arg Met Trp Asn Met  
165 170 175

Pro Val His Lys Trp Ile Ile Arg His Ile Tyr Phe Pro Cys Ile Arg  
180 185 190

Xaa Gly Phe Ser Arg Gly Val Ala Ile Leu Ile Ser Phe Leu Val Ser  
195 200 205

Ala Val Phe His Glu Ile Cys Ile Ala Val Pro Cys His Ile Phe Lys  
210 215 220

Phe Trp Ala Phe Ser Gly Ile Met Phe Gln Ile Pro Leu Val Phe Leu  
225 230 235 240

Thr Arg Tyr Leu His Ala Thr Phe Lys His Val Met Val Gly Asn Met  
245 250 255

Ile Phe Trp Phe Phe Ser Ile Val Arg Gln Pro Met Xaa Cys Leu Tyr  
260 265 270

Asn Xaa His Asp Val Met Lys Gln Ala Arg Pro Ser Lys  
275 280 285

<210> 11  
<211> 254  
<212> DNA  
<213> Oryza sativa

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<210> 12  
<211> 80  
<212> PRT  
<213> Oryza sativa

<400> 12  
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1 5 10 15

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20 25 30

Phe Lys Gln Ser His Ala Gly Leu Phe Asn Leu Cys Ile Val Val Leu  
35 40 45

Val Ala Val Asn Ser Arg Leu Ile Ile Glu Asn Leu Met Lys Tyr Gly  
50 55 60

Leu Leu Ile Arg Ala Gly Phe Trp Phe Asn Asp Lys Ser Leu Arg Asp  
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<210> 13  
<211> 1587

<212> DNA

<213> *Oryza sativa*

<400> 13

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agaacttaat	gaagtatggc	ttattaataa	gagctgggtt	ttggtttaat	gataaatcat
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<210> 14

<211> 500

<212> PRT

<213> *Oryza sativa*

<400> 14

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Asp Glu Ala Ala Pro Gly Ser Pro Pro Arg Pro Arg Pro Arg Pro Arg  
35 40 45

Pro Arg Gly Gly Asp Ser Asn Gly Arg Ser Val Leu Arg Pro Gly Gly  
50 55 60

Gly Gly Gly Arg Gly Gly Gly Gly Asp Phe Ser Ala Phe Thr Phe Arg  
65 70 75 80

Ala Ala Ala Pro Val His Arg Lys Ala Lys Glu Ser Pro Leu Ser Ser  
85 90 95

Asp Ala Ile Phe Lys Gln Ser His Ala Gly Leu Phe Asn Leu Cys Ile  
100 105 110

Val Val Leu Val Ala Val Asn Ser Arg Leu Ile Ile Glu Asn Leu Met  
115 120 125

Lys Tyr Gly Leu Leu Ile Arg Ala Gly Phe Trp Phe Asn Asp Lys Ser  
130 135 140

Leu Arg Asp Trp Pro Leu Leu Met Cys Cys Leu Ser Leu Pro Ala Phe  
145 150 155 160

Pro Leu Gly Ala Phe Ala Val Glu Lys Leu Ala Phe Asn Asn Val Ile  
165 170 175

Thr Asp Ala Val Ala Thr Cys Leu His Ile Phe Leu Ser Thr Thr Glu  
180 185 190

Ile Val Tyr Pro Val Leu Val Ile Leu Lys Cys Asp Ser Ala Val Leu  
195 200 205

Ser Gly Phe Leu Leu Ile Phe Ile Ala Cys Ile Val Trp Leu Lys Leu  
210 215 220

Val Ser Phe Ala His Thr Asn His Asp Ile Arg Gln Leu Thr Met Gly  
225 230 235 240

Gly Lys Lys Val Asp Asn Glu Leu Ser Thr Val Asp Met Asp Asn Leu  
245 250 255

Gln Pro Pro Thr Leu Gly Asn Leu Ile Tyr Phe Met Met Ala Pro Thr  
260 265 270

Leu Cys Tyr Gln Pro Ser Tyr Pro Arg Thr Ser Cys Val Arg Lys Gly  
275 280 285

Trp Leu Ile Arg Gln Ile Ile Leu Tyr Leu Ile Phe Thr Gly Leu Gln  
290 295 300

Gly Phe Ile Ile Glu Gln Tyr Ile Asn Pro Ile Val Val Asn Ser Gln  
305 310 315 320

His Pro Leu Lys Gly Gly Leu Leu Asn Ala Val Glu Thr Val Leu Lys  
325 330 335

Leu Ser Leu Pro Asn Val Tyr Leu Trp Leu Cys Met Phe Tyr Ala Phe  
340 345 350

Phe His Leu Trp Leu Ser Ile Leu Ala Glu Ile Leu Arg Phe Gly Asp  
355 360 365

Arg Glu Phe Tyr Lys Asp Trp Trp Asn Ala Lys Thr Ile Asp Glu Tyr  
370 375 380

Trp Arg Lys Trp Asn Met Pro Val His Lys Trp Val Val Arg His Ile  
385 390 395 400

Tyr Phe Pro Cys Met Arg Asn Gly Ile Ser Lys Glu Val Ala Val Leu  
405 410 415

Ile Ser Phe Leu Val Ser Ala Val Leu His Glu Ile Cys Val Ala Val  
420 425 430

Pro Cys Arg Ile Leu Lys Phe Trp Ala Phe Leu Gly Ile Met Leu Gln  
435 440 445

Ile Pro Leu Ile Val Leu Thr Ala Tyr Leu Lys Ser Lys Phe Arg Asp  
450 455 460

Thr Met Val Gly Asn Met Ile Phe Trp Phe Phe Phe Cys Ile Tyr Gly  
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Gln Pro Met Cys Leu Leu Leu Tyr Tyr His Asp Val Met Asn Arg Ile  
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Glu Lys Ala Arg  
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<210> 15  
<211> 1942  
<212> DNA  
<213> Glycine max

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<212> PRT  
<213> Glycine max

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Asn Ser Pro Glu Thr Thr Asp Ser Ser Gly Asp Asp Leu Ala Lys  
35 40 45

Asp Ser Gly Ser Asp Asp Ser Ile Asn Ser Asp Asp Ala Ala Val Asn  
50 55 60

Ser Gln Gln Gln Asn Glu Lys Gln Asp Thr Asp Phe Ser Val Leu Lys  
65 70 75 80

Phe Ala Tyr Arg Pro Ser Val Pro Ala His Arg Lys Val Lys Glu Ser  
85 90 95

Pro Leu Ser Ser Asp Thr Ile Phe Arg Gln Ser His Ala Gly Leu Phe  
100 105 110

Asn Leu Cys Ile Val Val Leu Val Ala Val Asn Ser Arg Leu Ile Ile  
115 120 125

Glu Asn Leu Met Lys Tyr Gly Trp Leu Ile Lys Ser Gly Phe Trp Phe  
130 135 140

Ser Ser Lys Ser Leu Arg Asp Trp Pro Leu Phe Met Cys Cys Leu Ser  
145 150 155 160

Leu Val Val Phe Pro Phe Ala Ala Phe Ile Val Glu Lys Leu Ala Gln  
165 170 175

Arg Lys Cys Ile Pro Glu Pro Val Val Val Leu His Ile Ile Ile  
180 185 190

Thr Ser Thr Ser Leu Phe Tyr Pro Val Leu Val Ile Leu Arg Cys Asp  
195 200 205

Ser Ala Phe Val Ser Gly Val Thr Leu Met Leu Phe Ser Cys Val Val  
210 215 220

Trp Leu Lys Leu Val Ser Tyr Ala His Thr Asn Tyr Asp Met Arg Ala  
225 230 235 240

Leu Thr Lys Leu Val Glu Lys Gly Glu Ala Leu Leu Asp Thr Leu Asn  
245 250 255

Met Asp Tyr Pro Tyr Asn Val Ser Phe Lys Ser Leu Ala Tyr Phe Leu  
260 265 270

Val Ala Pro Thr Leu Cys Tyr Gln Pro Ser Tyr Pro Arg Thr Pro Tyr  
275 280 285

Ile Arg Lys Gly Trp Leu Phe Arg Gln Leu Val Lys Leu Ile Ile Phe  
290 295 300

Thr Gly Val Met Gly Phe Ile Ile Asp Gln Tyr Ile Asn Pro Ile Val  
305 310 315 320

Gln Asn Ser Gln His Pro Leu Lys Gly Asn Leu Leu Tyr Ala Thr Glu  
325 330 335

Arg Val Leu Lys Leu Ser Val Pro Asn Leu Tyr Val Trp Leu Cys Met

340

345

350

Phe Tyr Cys Phe Phe His Leu Trp Leu Asn Ile Leu Ala Glu Leu Leu  
355 360 365

Arg Phe Gly Asp Arg Glu Phe Tyr Lys Asp Trp Trp Asn Ala Lys Thr  
370 375 380

Val Glu Asp Tyr Trp Arg Met Trp Asn Met Pro Val His Lys Trp Met  
385 390 395 400

Ile Arg His Leu Tyr Phe Pro Cys Leu Arg His Gly Leu Pro Lys Ala  
405 410 415

Ala Ala Leu Leu Ile Ala Phe Leu Val Ser Ala Leu Phe His Glu Leu  
420 425 430

Cys Ile Ala Val Pro Cys His Ile Phe Lys Leu Trp Ala Phe Gly Gly  
435 440 445

Ile Met Phe Gln Val Pro Leu Val Leu Ile Thr Asn Tyr Leu Gln Asn  
450 455 460

Lys Phe Arg Asn Ser Met Val Gly Asn Met Ile Phe Trp Phe Ile Phe  
465 470 475 480

Ser Ile Leu Gly Gln Pro Met Cys Val Leu Leu Tyr Tyr His Asp Leu  
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Met Asn Arg Lys Gly Lys Leu Asp  
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<211> 470

<212> DNA

<213> Glycine max

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<222> (424)

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cgccccgagac gaccaccgac agttccgggtg atgacttggc caaggattcc ggttccgacg 180  
actccatcag cagcgacgccc gccaattcgc aaccgcaaca aaaacaagac actgatttct 240  
ccgtcctcaa attcgctac cgtccttccg tccccgctca tcgcaaagtg aaggaaagtc 300  
cgctcagctc ccgacacccat ttcccggtcag aagtcaacgcg gggccttcc aacccctgt 360  
atagtaagtc cntgttgctg tgaataagcc gactcatcat tgagaatttt aaatgaaata 420  
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<210> 18  
<211> 38  
<212> PRT  
<213> Glycine max

<400> 18  
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Arg Lys Val Lys Glu Ser Pro Leu Ser Ser Asp Thr Ile Phe Val Arg  
20 25 30

Ser His Ala Gly Pro Leu  
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<212> DNA  
<213> *Triticum aestivum*

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ctatccgtgt ntgtgatcct taaagtgtga accacantat atcctgggtt gtgnntatgt 360  
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caactncaac aagtgtgtat cangtggcc caacactggt acaaccaatt taccggcan 540  
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<210> 20

<211> 39

<212> PRT

<213> Triticum aestivum

<400> 20

Ser Asp Ala Ile Phe Arg Gln Ser His Ala Gly Leu Leu Asn Leu Cys  
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Ile Val Val Leu Ile Ala Val Asn Ser Arg Leu Ile Ile Glu Asn Leu  
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Met Lys Tyr Gly Leu Leu Ile  
35

<210> 21

<211> 1975

<212> DNA

<213> Triticum aestivum

<220>

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<222> (93)

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cgttccaaat gtatgatatg cggccgggg tgtgtaccga agataccca gtgatgaagc 1860  
cgaagataac acgacccgtcc acatgtgtt tgtgtatacg ttccgttca tgtgccagca 1920  
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<400> 22  
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Ser His Gly Gly Pro Pro Pro Lys Pro Lys Thr Pro Pro Arg Thr Phe  
20 25 30  
  
Arg Asn Leu Pro Ser Ser Ser Thr His Gly Pro Ala Pro Ser Val Ala  
35 40 45  
  
Ala Ala Thr Ile Ala Thr Thr Pro Pro Ser Ala Ser Ala Ala Pro Leu  
50 55 60  
  
Pro Pro Thr Val His Gly Glu Ala Ala His Gly Ala Ala Ala Ala Ala  
65 70 75 80  
  
Arg Arg Asp Ala Leu Leu Pro Gly Val Gly Ala Ala His Arg Arg Val  
85 90 95  
  
Lys Glu Ser Pro Leu Ser Ser Asp Ala Ile Phe Arg Gln Ser His Ala  
100 105 110  
  
Gly Leu Leu Asn Leu Cys Ile Val Val Leu Ile Ala Val Asn Ser Arg  
115 120 125  
  
Leu Ile Ile Glu Asn Leu Met Lys Tyr Gly Leu Leu Ile Arg Ala Gly  
130 135 140  
  
Phe Trp Phe Ser Ala Arg Ser Leu Gly Asp Trp Pro Leu Leu Met Cys  
145 150 155 160  
  
Cys Leu Thr Leu Pro Ile Phe Pro Leu Ala Ala Leu Met Thr Glu Lys  
165 170 175  
  
Trp Ala Gln Arg Lys Leu Ile Arg Asp His Val Ser Ile Leu Leu His  
180 185 190  
  
Ile Ile Ile Thr Thr Val Leu Ile Tyr Pro Val Val Val Ile Leu  
195 200 205  
  
Lys Cys Glu Ser Ala Val Leu Ser Gly Phe Val Leu Met Phe Ile Ala  
210 215 220  
  
Ser Ile Thr Trp Leu Lys Leu Val Ser Phe Ala His Thr Asn Tyr Asp  
225 230 235 240

Ile Arg Ile Leu Ser Gln Ser Ile Glu Lys Gly Ala Thr His Gly Ser  
245 250 255

Ser Ile Asp Glu Glu Asn Ile Lys Gly Pro Thr Ile Asn Ser Val Val  
260 265 270

Tyr Phe Met Leu Ala Pro Thr Leu Cys Tyr Gln Pro Ser Tyr Pro Arg  
275 280 285

Thr Ala Phe Ile Arg Lys Gly Trp Val Thr Arg Gln Leu Ile Lys Cys  
290 295 300

Val Val Phe Thr Gly Leu Met Gly Phe Ile Ile Glu Gln Tyr Ile Asn  
305 310 315 320

Pro Ile Val Gln Asn Ser Lys His Pro Leu Asn Gly Asn Phe Leu Asp  
325 330 335

Ala Ile Glu Arg Val Leu Lys Leu Ser Val Pro Thr Leu Tyr Val Trp  
340 345 350

Leu Cys Met Phe Tyr Ser Phe Phe His Leu Trp Leu Asn Ile Leu Ala  
355 360 365

Glu Leu Leu Arg Phe Gly Asp Arg Glu Phe Tyr Lys Asp Trp Trp Asn  
370 375 380

Ala Lys Thr Val Glu Glu Tyr Trp Arg Met Trp Asn Met Pro Val His  
385 390 395 400

Lys Trp Ile Val Arg His Ile Tyr Phe Pro Cys Ile Arg Asn Gly Leu  
405 410 415

Ser Lys Gly Cys Ala Ile Leu Ile Ala Phe Leu Val Ser Ala Val Phe  
420 425 430

His Glu Leu Cys Ile Ala Val Pro Cys His Ile Phe Lys Leu Trp Ala  
435 440 445

Phe Ser Gly Ile Met Phe Gln Ile Pro Leu Leu Phe Leu Thr Lys Tyr  
450 455 460

Leu Gln Asp Lys Phe Lys Asn Thr Met Val Gly Asn Met Ile Phe Trp  
465 470 475 480

Phe Phe Phe Ser Ile Val Gly Gln Pro Met Cys Val Leu Leu Tyr Tyr  
485 490 495

His Asp Val Met Asn Arg Gln Ala Gln Thr Asn Gly  
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Val Arg Asp Ala Ala Val Ser Pro Asp Leu Gly Ala Gly Gly Asp Ala			
35	40	45	
Pro Ala Pro Ala Pro Ala Pro Ala His Thr Arg Asp Lys Asp Gly Arg			
50	55	60	
Thr Ser Val Gly Asp Gly Tyr Trp Asp Leu Arg Cys His Arg Leu Gln			
65	70	75	80
Asp Ser Leu Phe Ser Ser Asp Ser Gly Phe Ser Asn Tyr Arg Gly Ile			
85	90	95	
Leu Asn Trp Cys Val Val Met Leu Ile Leu Ser Asn Ala Arg Leu Phe			
100	105	110	
Leu Glu Asn Leu Ile Lys Tyr Gly Ile Leu Val Asp Pro Ile Gln Val			
115	120	125	
Val Ser Leu Phe Leu Lys Asp Pro Tyr Ser Trp Pro Ala Pro Cys Val			
130	135	140	
Ile Ile Ala Ser Asn Ile Phe Val Val Ala Ala Phe Gln Ile Glu Lys			
145	150	155	160
Arg Leu Ala Val Gly Ala Leu Thr Glu Gln Met Gly Leu Leu Leu His			
165	170	175	
Val Val Asn Leu Ala Thr Ile Ile Cys Phe Pro Ala Ala Val Ala Leu			
180	185	190	
Leu Val Glu Ser Ile Thr Pro Val Gly Ser Val Phe Ala Leu Ala Ser			
195	200	205	
Tyr Ser Ile Met Phe Leu Lys Leu Tyr Ser Tyr Arg Asp Val Asn Leu			
210	215	220	

Trp Cys Arg Gln Arg Arg Val Lys Ala Lys Ala Val Ser Thr Gly Lys  
225 230 235 240

Lys Val Ser Gly Ala Ala Ala Gln Gln Ala Val Ser Tyr Pro Asp Asn  
245 250 255

Leu Thr Tyr Arg Asp Leu Tyr Tyr Phe Ile Phe Ala Pro Thr Leu Cys  
260 265 270

Tyr Glu Leu Asn Phe Pro Arg Ser Pro Arg Ile Arg Lys Arg Phe Leu  
275 280 285

Leu Arg Arg Val Leu Glu Met Leu Phe Phe Thr Gln Leu Gln Val Gly  
290 295 300

Leu Ile Gln Gln Trp Met Val Pro Thr Ile His Asn Ser Met Lys Pro  
305 310 315 320

Phe Lys Asp Met Asp Tyr Ser Arg Ile Ile Glu Arg Leu Leu Lys Leu  
325 330 335

Ala Val Pro Asn His Leu Ile Trp Leu Ile Phe Phe Tyr Trp Phe Phe  
340 345 350

His Ser Cys Leu Asn Ala Val Ala Glu Leu Leu Gln Phe Gly Asp Arg  
355 360 365

Glu Phe Tyr Arg Asp Trp Trp Asn Ala Glu Ser Val Thr Tyr Phe Trp  
370 375 380

Gln Asn Trp Asn Ile Pro Val His Lys Trp Cys Ile Arg His Phe Tyr  
385 390 395 400

Lys Pro Met Leu Arg His Gly Ser Ser Lys Trp Val Ala Arg Thr Gly  
405 410 415

Val Phe Leu Thr Ser Ala Phe Phe His Glu Tyr Leu Val Ser Val Pro  
420 425 430

Leu Arg Met Phe Arg Leu Trp Ala Phe Thr Ala Met Met Ala Gln Val  
435 440 445

Pro Leu Ala Trp Ile Val Gly Arg Phe Phe Gln Gly Asn Tyr Gly Asn  
450 455 460

Ala Ala Val Trp Val Thr Leu Ile Ile Gly Gln Pro Val Ala Val Leu  
465 470 475 480

Met Tyr Val His Asp Tyr Tyr Val Leu Asn Tyr Asp Ala Pro Val Gly  
485 490 495

Val

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<212> PRT  
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Ser Asp Ser Ser Asn Gly Leu Leu Leu Ser Gly Ser Asp Asn Asn Ser  
35 40 45

Pro Ser Asp Asp Val Gly Ala Pro Ala Asp Val Arg Asp Arg Ile Asp  
50 55 60

Ser Val Val Asn Asp Asp Ala Gln Gly Thr Ala Asn Leu Ala Gly Asp  
65 70 75 80

Asn Asn Gly Gly Asp Asn Asn Gly Gly Arg Gly Gly Glu  
85 90 95

Gly Arg Gly Asn Ala Asp Ala Thr Phe Thr Tyr Arg Pro Ser Val Pro  
100 105 110

Ala His Arg Arg Ala Arg Glu Ser Pro Leu Ser Ser Asp Ala Ile Phe  
115 120 125

Lys Gln Ser His Ala Gly Leu Phe Asn Leu Cys Val Val Val Leu Ile  
130 135 140

Ala Val Asn Ser Arg Leu Ile Ile Glu Asn Leu Met Lys Tyr Gly Trp  
145 150 155 160

Leu Ile Arg Thr Asp Phe Trp Phe Ser Ser Arg Ser Leu Arg Asp Trp  
165 170 175

Pro Leu Phe Met Cys Cys Ile Ser Leu Ser Ile Phe Pro Leu Ala Ala  
180 185 190

Phe Thr Val Glu Lys Leu Val Leu Gln Lys Tyr Ile Ser Glu Pro Val  
195 200 205

Val Ile Phe Leu His Ile Ile Thr Met Thr Glu Val Leu Tyr Pro  
210 215 220

Val Tyr Val Thr Leu Arg Cys Asp Ser Ala Phe Leu Ser Gly Val Thr  
225 230 235 240

Leu Met Leu Leu Thr Cys Ile Val Trp Leu Lys Leu Val Ser Tyr Ala  
245 250 255

His Thr Ser Tyr Asp Ile Arg Ser Leu Ala Asn Ala Ala Asp Lys Ala  
260 265 270

Asn Pro Glu Val Ser Tyr Tyr Val Ser Leu Lys Ser Leu Ala Tyr Phe  
275 280 285

Met Val Ala Pro Thr Leu Cys Tyr Gln Pro Ser Tyr Pro Arg Ser Ala  
290 295 300

Cys Ile Arg Lys Gly Trp Val Ala Arg Gln Phe Ala Lys Leu Val Ile  
305 310 315 320

Phe Thr Gly Phe Met Gly Phe Ile Ile Glu Gln Tyr Ile Asn Pro Ile  
325 330 335

Val Arg Asn Ser Lys His Pro Leu Lys Gly Asp Leu Leu Tyr Ala Ile  
340 345 350

Glu Arg Val Leu Lys Leu Ser Val Pro Asn Leu Tyr Val Trp Leu Cys  
355 360 365

Met Phe Tyr Cys Phe Phe His Leu Trp Leu Asn Ile Leu Ala Glu Leu  
370 375 380

Leu Cys Phe Gly Asp Arg Glu Phe Tyr Lys Asp Trp Trp Asn Ala Lys  
385 390 395 400

Ser Val Gly Asp Tyr Trp Arg Met Trp Asn Met Pro Val His Lys Trp  
405 410 415

Met Val Arg His Ile Tyr Phe Pro Cys Leu Arg Ser Lys Ile Pro Lys  
420 425 430

Thr Leu Ala Ile Ile Ala Phe Leu Val Ser Ala Val Phe His Glu  
435 440 445

Leu Cys Ile Ala Val Pro Cys Arg Leu Phe Lys Leu Trp Ala Phe Leu  
450 455 460

Gly Ile Met Phe Gln Val Pro Leu Val Phe Ile Thr Asn Tyr Leu Gln  
465 470 475 480

Glu Arg Phe Gly Ser Thr Val Gly Asn Met Ile Phe Trp Phe Ile Phe  
485 490 495

Cys Ile Phe Gly Gln Pro Met Cys Val Leu Leu Tyr Tyr His Asp Leu  
500 505 510

Met Asn Arg Lys Gly Ser Met Ser  
515 520